

Remarks/Arguments

A. Pending Claims

Claims 2424-2426, 2430-2438, 2441-2449, 2457, 2458, 2460, 2461, 5150-5165, and 5167-5212 are currently pending. Claims 2424-2426, 2431-2433, 2435, 5151, 5152, 5154, 5156, 5157, 5159, 5160, 5165, 5167, 5184-5187, 5189, 5196, 5198, 5199, 5203, and 5205 have been amended. Claims 2425, 2426, 2431-2433, 2435, 5151, 5152, 5156, 5157, 5159, 5160, 5165, 5167, 5184-5187, 5189, 5198, 5199, 5203, and 5205 have been amended for clarification and/or correction of typographical errors. Claims 2439, 2440, and 5166 have been cancelled. Claims 5206-5212 are new.

B. The Claims Are Definite Pursuant To 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 2435, 5151, 5152, 5156, 5157, 5198, and 5199 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner states: “The use of the terms ‘part of’; ‘portion of’; and ‘portion of the part of’ is not clear in these claims.” Claims 2435, 5151, 5152, 5156, 5157, 5198, and 5199 have been amended for clarification. Applicant respectfully requests removal of the rejections of claims 2435, 5151, 5152, 5156, 5157, 5198, and 5199.

C. Provisional Double Patenting Rejections

The Examiner provisionally rejected claims 2439-2441 and 5173-5175 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over copending U.S. Patent Application Nos. 09/840,937; 09/841,170; 09/841,288; 09/841,291; 09/841,300; 09/841,432; 09/841,438; 09/841,445; 09/841,495; 09/841,638; and 09/841,639 in view of U.S. Patent No. 3,924,680 to Terry and “Coalbed Methane: Principles and Practice”. Applicant respectfully requests reconsideration of the double patenting rejections in light of

amendments enclosed with this response.

D. The Claims Are Not Obvious Over Tsai in View of Van Meurs Pursuant To 35 U.S.C. § 103(a)

The Examiner rejected claims 2424-2426, 2433-2438, 2442-2447, 2457, 2458, 2460, 5150-5153, 5154-5163, 5167-5172, 5176-5181, 5184-5194, 5196-5200, 5102, 5204, and 5205 under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 4,299,285 to Tsai et al. (hereinafter “Tsai”) in view of U.S. Patent No. 4,886,118 to Van Meurs et al. (hereinafter “Van Meurs”). Applicant respectfully disagrees with these rejections.

Under the heading “Allowable Subject Matter”, the Examiner states: “Claims 2432, and 5166 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art if rewritten in independent form including all of the limitations of the base claim and any intervening claims.” The Examiner also states in item 1 under the heading “Double Patenting”: “Claims 2439-2441, and 5173-5175 have been identified as including subject matter which is allowable over the prior art, but are subject to double patenting rejections.”

Independent claim 2424 has been amended to include features of claim 2440. Amended claim 2424 describes a combination of features including: “wherein the produced mixture comprises condensable hydrocarbons, and wherein less than about 1% by weight, when calculated on an atomic basis, of the condensable hydrocarbons is oxygen”. Independent claim 5154 has been amended to include features of claim 5166. Amended claim 5154 describes a combination of features including: “controlling the heat such that an average heating rate of the part of the formation is less than about 1 °C per day in a pyrolysis temperature range of about 270 °C to about 400 °C”. Independent claim 5196 has been amended to include features of claim 5173. Amended claim 5196 describes a combination of features including: “wherein the produced mixture comprises condensable hydrocarbons, and wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is nitrogen”. Applicant respectfully requests removal of the rejections of claims 2424, 5154, 5196, and the

claims dependent thereon.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Applicant submits, in addition, that many of the claims dependent on claims 2424, 5154, and 5196 are separately patentable.

In order to reject a claim as obvious, the Examiner has the burden of establishing a *prima facie* case of obviousness. *In re Warner et al.*, 379 F.2d 1011, 154 U.S.P.Q. 173, 177-178 (C.C.P.A. 1967). To establish a *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP § 2143.03.

The Examiner states: "With regards to claim 2433, 5167, 5205; Tsai fails to teach a heating rate, but Van Meurs teaches the heating rate less than 10°C/day."

Van Meurs states:

In the injection wells, electrical heaters are installed inside a well casing cemented into the formation and connected to a power source on the surface. The production wells are equipped with standard oil field pumps for lifting the produced oil to the surface. The electrical injection rate is 3.23×10^6 BTU/well per day. The temperature of the injectors attains 750° C. The production wells reach a terminal temperature of 300° C. after 33-34 years of operation. (Van Meurs, column 13, lines 9-17)

The electrical injection rate is 10.55×10^6 BTU/well per day. The injection well temperatures reach 750° C. and the production wells reach a final temperature of 300° C. after a production life of 9-10 years. (Van Meurs, column 13, lines 44-47)

Amended claims 2433, 5167, and 5205 describe a combination of features including: "wherein heating energy/day (*Pwr*) provided to the selected volume is equal to or less than $h * V * C_v * \rho_B$, wherein ρ_B is formation bulk density, and wherein an average heating rate of the

formation (h) is about 10 °C/day.” Van Meurs does not appear to teach or suggest providing heating energy/day (Pwr) wherein an average heating rate used to determine the Pwr is about 10 °C/day. Applicant respectfully requests removal of the rejections of claims 2433, 5167, and 5205.

The Examiner states: “With regards to claims 2436-2438, 2442-2447, 5171, 5172, and 5176-5180; the nature of hydrocarbons produced from such heating is highly variable, and dependent upon many factors, not least of which is the characteristics of the coal. The components of the produced mixture are deemed to be the results of design variables, including coal characteristics and temperature.”

Applicant submits that the produced mixtures recited in claims 2436-2438, 2442-2447, 5171, 5172, and 5176-5180 may be produced by controlling and/or modifying formation conditions during treatment to produce the selected results recited in the claims. The produced mixtures would not necessarily be produced by carrying out the process of Tsai. Furthermore, Tsai does not appear to teach or suggest the produced mixtures described in claims 2436-2438, 2442-2447, 5171, 5172, and 5176-5180. Applicant respectfully requests removal of the rejections of claims 2436-2438, 2442-2447, 5171, 5172, and 5176-5180.

The Examiner states: “With regards to claim 5153, 5158, and 5200; the open wellbore is inherent in the Tsai method (if the well was not open, the air would not flow into the coal as disclosed).” Applicant respectfully disagrees that an open wellbore is inherent in the process of Tsai. Perforated casings are well known in the art. Applicant respectfully requests removal of the rejection of claims 5153, 5158, and 5200.

E. New Claims

New claims 5206-5212 include features found at least in claims 2424 and 5189. Applicant submits that the new claims do not introduce new matter and do not read on the cited art.

F. Additional Comments

Applicant submits that all claims are in condition for allowance. Favorable consideration is respectfully requested.

A Fee Authorization is enclosed to cover the filing of four additional claims. If an extension of time is required, Applicant requests the appropriate extension of time. If any additional fees are required, please appropriately charge those fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account Number 50-1505/5659-06300/EBM.

Respectfully submitted,

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Date: 9-5-03